



ISIC Webinar Series - No.004

## New Digital As-Built and Project Information Model



**Time/Date** 9AM to 11AM US CDT (2PM WET, 10PM Beijing Time), July 29, 2021  
**Venue** GotoWebinar

### Moderators

Dr. George K. Chang, PE, President of ISIC; Transtec Group, USA  
Todd Mansell, Vice-President of ISIC NA Chapter; Product Application Specialist, Caterpillar, USA

### Speakers

David Unkefer, PE, FHWA, USA  
Lance Parve, WSP, USA  
Becky Hjelm, Utah DOT, USA  
Michael Cremin, MN DOT, USA  
Ahmad Abu-Hawash, IA DOT, USA  
Alexa Mitchell, HDR, USA

### Description

The past highway as-built has been paper or image-based technology. This practice has limited as-constructed information gathering and cannot make the information readily accessible and geospatially located accurately. The new digital as-built or project information model (DAB/PIM) can overcome the above limitations. DAB/PIM uses modern digital delivery technologies to support construction management and eConstruction. DAB/PIM can also capture other critical project information beyond construction. This new approach to digital project delivery is proven successfully to integrate design-construction data during the stages of before, during, and after construction. Therefore, DAB/PIM can produce benefits, including improved efficiency, quality, and cost savings. Ultimately, project-level DAB/PIM will contribute to a Digital-Twin of our highway system, i.e., a system-wide lifecycle collection of inventory information, geometrics, and other valuable information. The Digital-Twin will then be used for agencies' business needs to manage maintenance, operations, assets, and future project scoping/design/construction. Digital-twin can also support future connected vehicle technologies such as accurately updated maps. This webinar will focus on the driving forces, benefits, challenges, and what can be done to lay out a practical road map to start implementing DAB/PIM using existing and emerging tools and technology. Speakers will share US agencies' real-world experience and provide a vision for the future DAB/PIM.

### Registration

[The registration](#) is free. We will provide certificates of 0.2 PDH to participants upon request. [Apply for an ISIC membership for free.](#)

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## Agenda

Time	Topic	Speakers
95 min.	US National Implementation – EDC-6	Unkefer
	Overview on US National Technical State of Practice	Parve
	Utah DOT's Implementation	Hjelm
	Minnesota DOT's Implementation	Cremin
	Iowa DOT's Implementation	Abu-Hawash
25 min.	Panel Discussion	Unkefer, Parve, Hjelm, Cremin, Abu-Hawash, Mitchell

## Speakers' Bio



David Unkefer, PE, FHWA, USA (ISIC Technical Committee member)

Mr. Unkefer is a Senior Construction and Project Management Engineer providing US national technical assistance to FHWA and its partners. He is responsible for deploying innovative practices related to BIM for Infrastructure (aka civil integrated management or CIM), digital project delivery, and construction automation. He has led previous Every Day Counts initiatives for 3D engineered models and alternative contracting methods and currently is hosting post-EDC support for digital construction inspection and BIM usage for lifecycle asset management. David has been with FHWA for 27 years holding various engineering and leadership positions in 9 states. He is a professional engineer with degrees in Civil Engineering from the University of Florida and Purdue University.



Lance Parve, WSP, USA (ISIC Steering Committee member)

Mr. Parve is the Director of BIM Services, Advisory Services, WSP USA. Before joining WSP, Lance worked at Wisconsin DOT to plan, design, and construct mega-major transportation civil infrastructure projects. He also provided CIM-CAD-GIS, 3D-4D-xD technologies, and LiDAR-UAS survey coordination support. Working for WisDOT for over ten years involving public sector work, with 15 years of involvement in private sector civil and environmental infrastructure work, he has been involved in numerous successful planning, design, and construction mega-major transportation projects WisDOT. He has an MS Engineering degree, MS Certificate Urban Planning GIS degree, and a BS Geological Sciences degree from UW-Milwaukee. He serves as co-chairperson of the TRB AED80(1) subcommittee on BIM for Infrastructure and a member of the TRB AED80 Visualization in Transportation Committee.



Becky Hjelm, Utah DOT, USA

Ms. Hjelm has been a member of the Utah DOT team for over nine years and played an instrumental role in adopting GIS at UDOT. About three years ago, she left her role as the Data and Analytics Manager to move into preconstruction, focusing on advancing Digital Delivery. Becky has over twenty years of experience in GIS management, data analysis, project management, and IT development in government. She received her Bachelor's Degree from the University of Utah and her Master's Degree from the University of North Texas.



Michael Cremin, MN DOT, USA

Mr. Cremin is a Statewide Project Engineer with Minnesota DOT Asset Management Program Office. He received a degree from the University of Minnesota. He has gained ten years (7 years of private consulting and three years of state DOT) of implementing asset management programs, including data-driven risk-based decision engineering support. He focuses on ancillary asset management maturity development for Transportation Asset Management System software utilization (240 asset class codes), Transportation Asset Management Plan development (10 asset classes), Asset Management Strategic Implementation Plan development (72 asset classes), and Mobile Collection.



Ahmad Abu-Hawash, IA DOT, USA

Mr. Abu-Hawash is the Chief Structural Engineer for Iowa DOT, responsible for overseeing structural design activities on major bridge projects and reviewing design policies. He oversees research and coordinates the implementation of innovations in the Bridges and Structures Bureau. Ahmad received a BS degree from the University of Iowa and an MS degree from Iowa State University in Civil Engineering and Structures. Ahmad serves as the Chair of AASHTO Bridge and Structures Technical Committee on Software and Technology and as the Vice-Chair of AASHTO Technical Committee on Construction. He is a member of the AASHTO Technical Committee on Electronic Engineering Standards (JTCEES).



Alexa Mitchell, HDR, USA

Ms. Mitchell is HDR's Transportation BIM Program Manager and a professional engineer registered in MO and AZ. Alexa provides strategic and technical leadership to expand HDR's building information modeling practice and its use on significant infrastructure projects. She brings over 20 years of experience in project delivery and demonstrated a history of working in the highway industry, providing leadership to implement innovative solutions that transform everyday workflows. For 16 years with MoDOT, she led the agency by implementing 3D-engineered models for construction, electronic plans and signatures, and 3D surveys. She has spent the last six years working as a BIM consultant to help clients navigate the changing environment of BIM-enabled project delivery, from determining the proper approach to using the model as the legal document to construction and asset management. Her guidance adds value entire project life cycle.



## Moderators' Bio



Dr. George K. Chang, PE, President of ISIC; Transtec Group, USA

Dr. Chang is a world expert on pavement smoothness and intelligent compaction/construction technologies. He has founded the International Society for Intelligent Construction - ISIC ([www.IS-IC.org](http://www.IS-IC.org)). His research, teaching, specification development, and software tools have helped make significant technological advancements in the above fields. The websites he develops and maintains, Profile Viewing and Analysis - ProVAL ([www.RoadProfile.com](http://www.RoadProfile.com)) and Intelligent Construction Technologies - Veta ([www.IntelligentConstruction.com](http://www.IntelligentConstruction.com)), have become a one-stop-shop for pavement smoothness and intelligent compaction (IC)/construction technologies (ICT). In the past 15 years, he has been leading the IC/ICT implementation efforts worldwide, including the US, China, and Australia.



Todd Mansell, Vice-President of ISIC North American Chapter; Product Application Specialist, Caterpillar, USA

Mr. Mansell has worked in the asphalt paving industry for over 30 years in different roles ranging from a transportation department, engineering consulting firms, a heavy highway & civil construction company, and two equipment manufacturers. For the past eight years, Todd has been with Caterpillar as a Product Application Specialist focusing on asphalt pavers, soil and asphalt compaction, and new and emerging technologies.